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HINGE TRANSPOSITION IN *EUCRASSATELLA* (PELECYPODA: CRASSATELLIDAE)

By Thomas A. Darragh
National Museum of Victoria

Abstract

Hinge transposition has been observed in *Eucrassatella deltoides* Darragh 1965 and *E. oblonga* (Tenison Woods 1876). The cardinal and anterior lateral teeth are transposed but the posterior lateral tooth is in its normal position.

Introduction

Of 540 valves of *Eucrassatella* from the Tertiary of South-eastern Australia two were found with abnormal hinges. Closer examination showed that the abnormality was due to hinge transposition. 'A transposed lamellibranch hinge is defined as one that exhibits in the right valve the hinge elements normally occurring in the left valve, and vice-versa' (Popenoe and Findlay 1933, p. 301). This term is what other authors have called hinge inversion. Popenoe and Findlay have discussed in detail the concept of hinge transposition, have listed the various types known to occur, and have summarized previous literature.

Weaver (1963, p. 294) has given the first record of hinge transposition in the Crassatellidae.

The notation of the hinge is based on Lamy (1917) and Davies (1925). Davies (1925, p. 156) used the tooth symbols of the normal right valve (the odd numbers) for the transposed hinge of the left valve, and vice-versa.

All specimens are from the collections of the National Museum of Victoria and bear the museum's registered numbers.

Description

The type of hinge transposition recorded is that of group (1) of Popenoe and Findlay (1933, p. 306) where the cardinal and anterior lateral teeth are transposed and the posterior laterals are not transposed.

The normal dentition in the right valve of *Eucrassatella* consists of a poorly developed anterior cardinal 3a, a large triangular centrally placed cardinal 3b, and a very weak posterior cardinal 5b. There are no anterior laterals but a long posterior lateral LPI is present (Pl. 7, fig. 1, 2).

In the left valve there is a prominent anteriorly placed cardinal 2 and a weak posterior cardinal 4b. An anterior lateral tooth LA II is present but no posterior laterals. The tooth formula may be written as follows:

Right Valve	3a	3b	5b	LPI
Left Valve	LAII	2	4b	

The abnormal valves belong to two species of *Eucrassatella, E. deltoides* Darragh 1965 and *E. oblonga* (Tenison Woods 1876). The former is represented by a pair of valves (P.23068-9) from the lime quarry at the foot of the Dutchman, Flinders Is., Tasmania. The age of the deposit is Middle (?) Pliocene. (Pl. 7, fig. 3, 4.) The posterior lateral tooth is in its normal position but the position of

the anterior lateral and the cardinals is the mirror image of that in the normal valve.

E. oblonga (Tenison Woods) is represented by a single left valve (P.23070) from the lower bed at Table Cape (Fossil Bluff near Wynyard, Tasmania). (Pl. 7, fig. 5.) The cardinals present are those normally found in the right valve. In this specimen, the socket for the right posterior lateral LPI is deformed, suggesting that the lateral may have been deformed also.

The tooth formula for these abnormal valves is as follows:

Right Valve	LAII	2	4b	LPI
Left Valve		3a	3a	5b

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References

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Explanation of Plate

Plate 7

All photographs were taken by the author.

Fig. 1-4—*Eucrassatella deltoides* Darragh. 1, P.23052, paratype, internal normal left valve, topotype, × 0·75. 2, P.23051, holotype, internal normal right valve, E. side of Dutchman, Flinders Is., Tas., × 0·75. 3, P.23069, hypotype, internal left valve with transposed hinge, E. side of Dutchman, Flinders Is., Tas., × 0·74. 4, P.23068, hypotype, internal right valve with transposed hinge, × 0·77.

Fig. 5-7—*Eucrassatella oblonga* (Tenison Woods). 5, P.23070, hypotype, internal left valve with transposed hinge, topotype, × 0·75. 6, P.23033, hypotype, internal normal left valve, topotype, × 0·77. 7, B 42 Z 174 holotype (Tasmanian Museum), internal normal right valve, lower bed Fossil Bluff near Wynyard, Tas., × 0·71.


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